

REMARKS

Claims 1, 3 and 8 are active. Claim 1 is rejected under 35 USC 112, 1st paragraph. Claims 1, 3 and 8 are rejected under 35 USC 103 as being unpatentable over Kawamoto in view of Mutsaers. The drawing and specification are objected to based on the rejection of claim 1 under 35 USC 112. Claim 1 is objected to.

Amendment is made to claim 1 to meet the objection thereto and the rejection under 35 USC 112. This amendment obviates the objections to the specification and drawing, which should be withdrawn. Minor amendment is made to the specification in the interest of clarity and consistency to correct typographical errors. The Action deems the coupling of the switching transistor to one of its source/drain electrodes via a capacitive coupling is new matter. Applicants have amended claim 1 accordingly as the prior amendment to claim 1 was in error. The charging transistor gate is that which is capacitively coupled to one of its source/drain electrodes as observed by the Action. Applicants thank the Examiner for his constructive comments. The charging transistor gate electrode, as claimed, is not connected by an electrical line to the circuit input, a voltage source, the reference potential or to the output not shown in any of the references.

The objection to the specification and to the drawing based on the prior error in claim 1 is corrected by the instant amendment. Claim 1 is amended to meet the objection based on 35 USC 112 and the objection thereto as to the lack of antecedent basis for the term "input." Therefore, the objections based on formal matters in regard to claim 1, the specification and drawing should be withdrawn. It is believed that amended claim 1 is correct as to these issues.

Amended claims 1, 3 and 8 are submitted for the Examiner's reconsideration.

Amended claim 1 is not suggested, disclosed or otherwise made obvious by any of the cited references of record including Kawamoto, Kasai or Mutsaers, taken individually or in combination.

Amended claim 1 calls for:

An organic logic gate comprising:
a circuit having an input and an output and comprising at least one organic charging field effect transistor (charging FET) on a substrate;
the charging FET including a first structured layer comprising source and drain electrodes;
followed by a semiconductor layer on the electrodes followed by a layer of insulating material on the semiconductor layer and adjacent to and contiguous with a second electrode layer forming a gate electrode; and
at least one switching organic field effect transistor (switching FET) having at least one gate electrode, a source electrode and a drain electrode;
the drain-source electrodes of the charging and switching transistors being arranged to be coupled in series between a voltage source and a reference potential such that the gate electrode of the charging FET is not connected via an electrical line directly to a voltage source, to the reference potential, to the input or to the output; wherein the gate electrode of the charging FET is directly capacitively coupled to one of the source/drain electrodes of the charging FET.

Kawamoto is cited as disclosing this structure except the FET transistor is not organic and the structure as claimed. What is missing in the Action is that this reference also does not disclose a capacitor as claimed, either in amended claim 1 as presented herein or in claim 1 prior to this amendment. See Kawamoto Fig. 2A cited by the Action wherein the capacitor is also missing. This reference does not suggest claim 1 in addition for the reasons given in the Action.

The Action states that the capacitor limitation fails to satisfy the written description requirement to inform a skilled artisan that the applicants were in possession of the claimed invention at the time the application was filed. Therefore this justifies the conclusion ignoring the capacitor limitation. This conclusion is improper. MPEP

2143.03 states that all limitations must be considered. Under Section II of MPEP 2143, it is stated here that "limitations that do not find support in the original specification must be considered." "it was error to disregard these limitations when determining whether the claimed invention would have been obvious in view of the prior art." Therefore, since Kawamoto is missing the claimed capacitor, it can not suggest claim 1, either as previously presented or as presented herein. This basis of the rejection is in error and should be withdrawn. Since claim 1 as amended is no longer objectionable for the reasons stated, then the capacitor further must be considered. In view of these facts, claim 1 is believed allowable over this reference.

Claim 1 calls for

1. "the gate electrode of the charging FET is not connected via an electrical line directly to a voltage source, to the reference potential, to the input or to the output"
2. "the gate electrode of the charging FET is directly capacitively coupled to one of the source/drain electrodes of the charging FET"

Applicants generally addressed these rejections in its prior responses based on the overall involved limitations notwithstanding the differences in the prior claims to the present claim 1 as amended.

- Kawamoto-Item 2, the capacitive coupling, is missing and thus this reference is not relevant to amended claim 1 as discussed above.
- The terms "charging" and "switching" are not labels.

The Advisory asserts that assigning the term "charging" to a transistor of Kasai is merely a label. This conclusion also applies to the term "switching" transistor as well. Applicants disagree that these terms are mere labels. These are structural limitations

directed to the circuit function of the transistors in that they either serve to charge the capacitor or perform a switching function.

The Advisory Action, in referring to Kasai previously cited, states that "Referring to Tr1 as a driving FET rather than a charging FET, is merely a labeling difference." Applicants disagree. These terms describe their function in the circuit and are not mere labels. The capacitor of Kasai controls the conductive state of Tr1 [0072] (lines 8-10 of this paragraph and also via the voltage V_2 at its gate). Therefore, whatever current flows through the S/D electrodes of Tr1 is not directed to the capacitor and thus Tr1 does not control the charging of the capacitor, the inverse of what Kasai states. Further, no convincing line of reasoning is given as to support in Kasai that transistor Tr1 serves as a charging device, what ever that may mean. What is it that Tr1 charges is not explained by the Action nor by Kasai.

Claim 1 patentably distinguishes claim 1 from Kasai. Their Tr1 is not a charging transistor as claimed. Kasai states at [0073] page 5, "electric charge is accumulated in the capacitance element 2 based on an amount of current according to a data signal output from a current source 4. Thus the emitting state of organic electroluminescence can be controlled based on the amount of current according to data." Also see paragraph [0010] stating that "Tr2 and Tr3 are turned on . . . which causes electric charge . . . to be accumulated in the capacitance element 2." Tr1 is not mentioned as charging the capacitance, i.e., it does not cause electric charge to be accumulated in the capacitance element 2. The Kasai specification further states "the transistor Tr1 is turned on by the electric charge accumulated in the capacitance element 2." Since Tr1 is turned on by the charge in the capacitance, it can not be a device for charging the

capacitance (and what else is not explained by the Action) at the same time, which is contradictory, contrary to Kasai.

As to point 1, no gate of any transistor disclosed by Kasai is floating in a manner as claimed, all gates are connected to a voltage source contrary to what is claimed. Regardless of which transistor of Kasai is deemed the charging transistor, then it is plain that all of their gate electrodes are connected via a line directly to a voltage source contrary to amended claim 1. Tr3 and Tr2 gates are connected to an input V_{SEL} . The gate of Tr4 is connected to V_{gp} . The gate of Tr1 is connected to V_2 , all of which are voltage sources. Thus no transistor is disclosed by Kasai in which its gate electrode is not connected via a line to a voltage source as claimed much less a charging transistor as claimed. None of the other figures of the reference disclose what is claimed as well. All show a gate electrode receiving a voltage. Therefore, it does not matter even if any of such transistors are deemed a charging transistor as claimed in claim 1 amended, none meet what is claimed. Kasai does not suggest or disclose amended claim 1. For this reason alone, amended claim 1 is believed allowable over this reference. But claim 1 is also believed allowable for the following reasons.

Point 1. Kasai transistor Tr4 is not disclosed as a switching transistor. Tr4 is always on. "Tr4 is turned on at all times" [0076]. If Tr4 is on at all times the conclusion in the Final Action of Dec. 16, 2008 is in error that Tr4 is a switching transistor (paragr. 6 of the Action). A transistor that is on at all times does not function to perform a switching action. No explanation is given by the Action as to why a transistor that is always on can operate as a switching device. The switching devices in Kasai are switches 21 and 22 and not transistor Tr4. The term "switch" means, in electrical

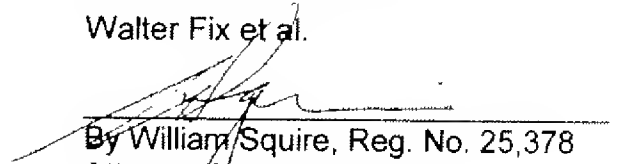
systems, "a device for turning on or off or directing an electric current [e.g., among different paths], or making or breaking a circuit." The Random House College Dictionary, Revised Edition, 1975, page 1329. Kasai transistor Tr4 does not serve as a switch. There is no switching transistor arranged to be in series with the charging transistor as claimed whether the charging transistor be Tr1 as asserted or Tr2 as submitted by applicants. Therefore, this aspect of claim 1 is also missing in the reference. If Tr3 is deemed a charging transistor, its gate is not directly capacitively coupled to one of its source/drain electrodes as claimed.

Mutsaers is cited for disclosing an organic transistor constructed as claimed and is missing the claimed structures discussed above. For the reasons given, amended claim 1 is believed allowable. Claims 3 and 8 depend from claim 1 and are believed allowable for at least the same reasons. Since claims 1, 3 and 8 have been shown to be in proper form for allowance, such action is respectfully requested.

The Commissioner is authorized to respectively charge or credit deposit account 03 0678 for any under or overpayments in connection with this paper as noted on the first page of this paper.

Respectfully submitted,

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